

PENGARUH PROTEKSI BUNGKIL KEDELAI MENGGUNAKAN EKSTRAK DAUN MAHONI (*Swietenia mahagoni*) TERHADAP PRODUK FERMENTASI RUMEN SECARA *IN VITRO*

ABSTRAK

Merryafinola Ifani

D2A019014

Penelitian bertujuan mengkaji pengaruh proteksi bungkil kedelai menggunakan ekstrak daun mahoni terhadap produk fermentasi rumen secara *in vitro*. Materi yang digunakan yaitu cairan rumen sapi, ransum basal terdiri dari konsentrat dan rumput gajah dengan rasio 60:40%, serta daun mahoni. Penelitian dilaksanakan dalam tiga tahap yaitu ekstraksi mahoni, proteksi protein menggunakan ekstrak mahoni, dan tahap *in vitro*. Pengujian dilakukan secara *in vitro* dan menggunakan rancangan acak lengkap (RAL). Perlakuan terdiri 4 macam proteksi bungkil kedelai dengan konsentrasi tanin 0% (P0); 1,5% (P1); 3% (P2); dan 4,5% (P3). Data yang diperoleh dianalisis dengan analisis variansi dan perbedaan rerata perlakuan diuji menggunakan orthogonal polinomial. Hasil penelitian menunjukkan bahwa penambahan bungkil kedelai terproteksi ekstrak daun mahoni berpengaruh secara kubik terhadap VFA parsial (asetat, propionat, dan butirrat) dan gas metan, berpengaruh secara kuadratik terhadap protozoa dan protein terlarut pasca rumen, serta berpengaruh secara linear terhadap N-NH₃, SPM, dan RUDP. Pemberian taraf 1,5% menghasilkan produk VFA parsial yang tidak berbeda nyata dengan kontrol dan mampu meningkatkan SPM dengan efisiensi energi terbaik. Pemberian taraf 3% mendapatkan produksi VFA parsial tertinggi, namun menghasilkan produksi gas metan tertinggi pula. Pemberian ekstrak daun mahoni taraf 4,5% menghasilkan konsentrasi VFA, SPM, dan RUDP tertinggi namun terjadi penurunan pada protein terlarut yang menunjukkan terjadinya *over proteksi*. Penambahan ekstrak daun mahoni taraf 1,5% menghasilkan efisiensi energi terbaik dibanding taraf lainnya, dan secara efektif mampu meningkatkan RUDP dan protein terlarut tanpa mengganggu aktivitas bakteri rumen.

Kata kunci: rumen, tanin, protein, mikroba

THE EFFECT OF SOYBEAN PROTECTION USING MAHONI LEAF (*Swietenia mahagoni*) EXTRACT ON IN VITRO RUMENT FERMENTATION PRODUCTS

ABSTRACT

Merryafinola Ifani

D2A019014

This study examines the protective effect soybean meal using mahogany leaf extract on *in vitro* rumen fermentation products. The materials used were beef rumen fluid, basal ration consisting of concentrate and elephant grass with a ratio of 60: 40%, and mahogany leaves. The study was carried out in three stages, namely mahogany extraction, protein protection using mahogany extract, and *in vitro* stages. The test was carried out in vitro and used a completely randomized design (CRD). The treatments consisted of 4 types of protection for soybean meal with a concentration of tannins 0% (P0); 1.5% (P1); 3% (P2); and 4.5% (P3). The study used a analyzed by analysis of variance and the mean difference in treatment was tested using orthogonal polynomials. The results showed that the addition of soybean meal protected by extract of mahogany leaves had a cubic effect on partial VFA (acetate, propionate, and butyrate) and methane gas, had a quadratic effect on post-rumen dissolved protein and protozoa, and had a linear effect on N-NH₃, SPM, and RUDP. The giving level of 1.5% resulted in a partial VFA product that was not significantly different from the control and was able to increase the SPM with the best energy efficiency. Giving a level of 3% obtained the highest partial VFA production, but also produced the highest methane gas production. The administration of mahogany leaf extract with a level of 4.5% resulted in the highest concentrations of VFA, SPM, and RUDP but there was a decrease in the dissolved protein which indicated overprotection. The addition of mahogany leaf extract at a level of 1.5% resulted in the best energy efficiency compared to other levels and was able to effectively increase RUDP and dissolved protein without disturbing the activity of rumen bacteria.

Key Words: rumen, tannins, protein, microbes